California Physical Fitness Testing 2002

Report to the Governor and Legislature

January 2003

prepared by the

Standards and Assessment Division
California Department of Education

Introduction

In spring 2002, physical fitness testing was conducted in California public schools in grades 5, 7, and 9. The test used was the *Fitnessgram*, designated for this purpose by the State Board of Education. This report summarizes results of the 2002 test administration and provides a summary comparison with the results from 2001.

Background

Assembly Bill (AB) 265, signed into law in October 1995 (Education Code Section 2, Chapter 6. Section 60800), re-established statewide physical performance testing and mandated that:

> "…during the month of March, April, or May, the governing board of each school district maintaining any of grades five, seven and nine shall administer to each pupil in those grades the physical performance test designated by the State Board of Education."

AB 265 also required that physical fitness testing data be collected at least once every two years. In February 1996, the State Board of Education designated the *Fitnessgram* as the required physical performance test to be administered to California students.

Senate Bill (SB) 896, approved in 1998, further required the California Department of Education (CDE) to report results to the Governor and Legislature at least once every two years. Beginning in spring 2001, CDE determined to collect and report data every year. This report was intended to standardize data, track the development of high-quality fitness programs, and compare the performance of California's pupils to national norms on an annual basis.

All students in the specified grades were expected take the physical fitness test, regardless of whether or not they were in a physical education class. Students who were physically unable to take the entire physical fitness test were to be given as much of the test as conditions permitted.

Description of Test

The *Fitnessgram* was developed by the Cooper Institute for Aerobics Research in Dallas, Texas and endorsed by the American Alliance for Health, Physical Education, Recreation, and Dance. The primary goal of the *Fitnessgram* program is to assist students in establishing physical activity as part of their daily lives. Because of this goal, *Fitnessgram* provides a number of options for each performance task so that all students, including those with special needs, have the maximum opportunity to complete the test. Availability of options is especially important in measurement of body composition, which is the component of physical fitness that tends to be the greatest

parental concern due to assessment methods. With additional alternatives for body composition measurement, districts were more comfortable completing that section of the fitness test.

Physical fitness consists of three components: 1) aerobic capacity, 2) body composition, and 3) muscular strength, endurance, and flexibility. To ensure thorough measurement of all three components, the *Fitnessgram* test is made up of the following six major fitness areas with multiple performance task options for most areas:

Aerobic Capacity
- Pacer
- Mile Walk/Run
- Walk Test

Abdominal Strength and Endurance
- Curl-up

Upper Body Strength and Endurance
- Push-up
- Modified Pull-up
- Pull-up
- Flexed Arm Hang Flexibility
- Back-saver Sit and Reach
- Shoulder Stretch

Body Composition
- Percent Fat
- Body Mass Index

Trunk Extensor Strength and Flexibility
- Trunk Lift

Flexibility
- Back-saver Sit and Reach
- Shoulder Stretch

To complete the Fitnessgram, students were required to be tested in the following:
- one of the options from aerobic capacity
- one of the options from body composition
- the curl-up test
- the trunk lift test
- one of the options from upper body strength
- one of the options from flexibility

A brief description of major areas of the *Fitnessgram* and the performance task options are included here.

Aerobic Capacity

This is perhaps the most important indicator of physical fitness and assesses the capacity of the cardiorespiratory system by measuring endurance.

The Pacer (Progressive Aerobic Cardiovascular Endurance Run). This is a multi-stage fitness test set to music, which provides a valid, fun alternative to the customary distance run. It is strongly encouraged for students K–3, but may be used in all grades. The objective is to run as long as possible back and forth across a 20-meter distance at a specified pace that gets faster each minute.

One Mile Walk/Run. The objective is to walk and/or run a mile distance at the fastest pace possible.

Walk Test. The objective is to walk a one-mile distance as quickly as possible while maintaining a constant walking pace the entire distance. This test is for students ages 13 and older. It is scored in minutes, seconds, and heart rate.

Body Composition

Body composition results provide an estimation of the percent of a student's weight that is fat in contrast to the "fat-free" body mass, muscles, bones, and organs.

Skinfold Measurements. Measurements of the thickness of the skinfold on the back of the upper right arm and the inside of the right calf are taken using a device called a skinfold caliper. A formula is used to calculate percent body fat using these measurements.

Body Mass Index. This test provides an indication of a student's weight relative to his or her height. Height and weight measures are inserted into a formula, and a body mass index number is calculated. Although not as accurate an indicator of body composition as the skinfold measurement, districts and schools find this measurement less of a parent concern than skinfold measurements.

Abdominal Strength and Endurance

Abdominal strength and endurance are important in promoting good posture and correct pelvic alignment. Strength and endurance of the abdominal muscles are important in maintaining low back health.

Curl-up Test. The objective of this test is to complete as many curl-ups as possible up to a maximum of 75 at a specified pace.

Trunk Extensor and Flexibility

This test is related to low back health and vertebral alignment.

Trunk Lift. The objective of this test is to lift the upper body a maximum of 12 inches off the floor using the muscles of the back and hold the position to allow for the measurement.

Upper Body Strength and Endurance

This test measures the strength and endurance of the upper body and is related to maintenance of correct posture. It is important to have strong muscles that can work forcefully and/or over a period of time.

Push-up. The objective of this test is to complete as many push-ups as possible at a specified pace.

Modified Pull-up. The objective of this test is to successfully complete as many modified pull-ups as possible.

Pull-up. The objective of this test is to correctly complete as many pull-ups as possible.

Flexed Arm Hang. The objective of this test is to hang by the arms with the chin above a bar as long as possible.

Flexibility

This test measures joint flexibility which is important to functional health.

Back Saver Sit and Reach. The objective is to assess the flexibility of the lower back and posterior thigh. The student should be able to reach a specified distance while sitting at a sit-and-reach box. Both the right and left side of the body is measured.

Shoulder Stretch. This is a simple test of upper body flexibility. The student should be able to touch the fingertips together behind the back by reaching over the shoulder and under the elbow.

The Standards

The *Fitnessgram* uses criterion-referenced standards to evaluate fitness performance. These standards were established by the Cooper Institute for Aerobics Research to represent a level of fitness that offers some degree of protection against diseases that result from sedentary living. Findings from current research based on the United States national norms have been used as the basis for establishing the *Fitnessgram* standards.

Performance is classified into two general areas: (1) "in the healthy fitness zone (HFZ)" and (2) "needs improvement." Appendix 1 provides a list of the standards for the HFZ. All students should strive to achieve a score within the HFZ. It is possible that some students score above the HFZ. These scores were included with students that had scored within the HFZ. For the purpose of this report, scores are reported as meeting the standard (falling in the fitness zone) or not meeting the standard (falling lower than the HFZ).

Data Collection

Statewide data collection in 2001–2002 was done electronically. Districts submitted their data to CDE by June 30, 2002, through the Internet, or by diskette, CD-ROM, data tape, or through e-mail.

Fitness test results for 2002 will be reported by school, county, district, and state on CDE Web site at <http://www.cde.ca.gov/statetests/> (Internet). No individual student data will be reported.

Participation in 2002 Testing

In the spring of 2002, the physical fitness test was taken by 90 percent of all fifth grade students, 83 percent of all seventh grade students, and 68 percent of all ninth grade students for a total of 1,265,546 students. This represents approximately 92 percent of school districts participating in physical fitness testing. Tables 1 and 2 (page 8) present the gender and racial/ethnic composition of the student population participating in physical fitness testing.

Results of 2002 Testing

In Table 3 (page 9), the overall results for 2002 are reported in two ways. First, in Table 3 the percentage of students in the healthy fitness zone (HFZ) for each fitness task is reported. A student not in the healthy fitness zone indicates that the student did not meet the minimum level of fitness for that fitness task. This table shows a significant percentage of students did not meet minimum fitness levels for most of the fitness tasks. A summary of Table 3 is as follows:

- Aerobic capacity: only 48–57 percent of students were in the HFZ across all grades
- Body composition: only 65–66 percent of students were in the HFZ across all grades
- Abdominal strength: 78–81 percent of students were in the HFZ across all grades
- Trunk extension strength: 80–86 percent of students were in the HFZ across all grades
- Upper body strength: only 61–63 percent of students were in the HFZ across all grades
- Flexibility: only 64–69 percent of students were in the HFZ across all grades

Table 4 (page 9) reports the number of fitness standards achieved (from one to six of the standards). Achievement of the fitness standards is based upon a test score falling in the HFZ. Each of the six tasks measures a different aspect of fitness. Since the fitness standard (HFZ) represents minimal levels of satisfactory achievement on the tasks, a student must meet all of the fitness standards before he or she is considered fit. Only students meeting six of six fitness standards can be considered fit for their grade level. Table 4 shows that most of the students tested did not demonstrate fitness. Only 22 percent of students in grade five, 26 percent in grade seven, and 23 percent in grade nine met six fitness standards. The columns in Table 4 that display the percentage of students achieving 5, 4, 3, 2, 1, or no standards indicate how much improvement would be needed before the students could be considered fit.

Subgroup data are presented in Tables 5–15 pages 10–15. Table 5 shows that in grades 5 and 7, more females than males met all six fitness standards, but in grade 9, more males than females achieved the six standards. Across all grade levels, more females than males were in the HFZ for flexibility, body composition, and trunk extension strength, but more males than females were in the HFZ for abdominal strength and upper body strength.

Although no racial/ethnic group exhibited high levels of fitness, subgroup results in table 9–15 (pages 12–15) showed significant differences among ethnic groups. Results for Asian/Asian American and White (not of Hispanic origin) subgroups showed the highest percent of students meeting all of the fitness standards, while the Hispanic/Latino and African/African American subgroups had the lowest. The difference between subgroups who had the highest percent of students meeting all standards and subgroups who had the fewest achieving that goal was approximately 10 percent in grade 5, 13 percent in grade 7, and 13 percent in grade 9.

Comparison of 2001 and 2002 Participation and Physical Fitness Test Results

Results from the 2002 physical fitness tests were reported for 1,265,546 students compared to 1,172,329 students in 2001. Approximately 92 percent of school districts submitted data in 2002 which was an increase of 2 percent from 2001. This high participation rate can be attributed to:

- Increased training opportunities
- Several options available for reporting data electronically
- Increased visibility of the physical fitness test
- Follow-up letters sent to schools who failed to report data in 2001

Tables 14 and 15 (page 15) show there were no major changes between 2001 and 2002 physical fitness test results. However, there was an increase from 23 percent to 24 percent in the number of students that are considered fit. In addition, there was an increase from 4.5 percent to 6.0 percent in the number of students that achieved 0 of 6 fitness standards.

In summary, the results indicate that there are only minimal changes between the 2001 and 2002 physical fitness testing data and that a large percentage of students do not meet minimum fitness levels.

Tracking High-quality Fitness Programs

The 1999 physical fitness testing data should be considered baseline data, as it was the first time in nearly a decade that statewide collection and reporting of information about the fitness levels of students occurred. The results of 2002 testing provide a third year of data. Although it is not possible to identify a trend after only three years, the results have been compared and analyzed (see section above).

Identification of quality physical education programs has existed in California through the California Physical Education and Health Education Exemplary School award program and the California Association of Health, Physical Education, Recreation and Dance (CAHPERD.) The addition of physical fitness data to the program criteria will serve only to enrich these two award programs.

Summary

Three years of data show that most students at all three grade levels are not fit when compared to standards established by the Cooper Institute for the *Fitnessgram*, a measurement of fitness levels which is used nationally. Although there was a 1 percent increase overall in number of students considered fit, there is still much work to do to ensure high levels of fitness for all students in California. Both males and females from all ethnic backgrounds could benefit from a greater emphasis on all areas of physical fitness, especially aerobic capacity, body composition, upper body strength and flexibility. Once again, districts and schools are encouraged to use the data from this test to examine their physical education programs and plan improvements in their current programs.

This is only the third time in thirteen years that quality data about fitness of California's youth has been reported. Full and complete public access to these data will be available via Internet, providing reports for every county, district and school. Teachers, parents, and administrators will have the opportunity to examine the fitness levels of their children on an annual basis and use this information to make important changes. The newly-completed analysis research study by the California Department of Education provides concrete evidence that the student who is physically educated and fit has the ability to achieve academically.

Implications for the California Department of Education

The 1999 physical fitness testing data should be considered baseline data, as this was the first time in nearly a decade that statewide collection and reporting of information about the fitness levels of students occurred. However, beginning in the spring 2001, CDE determined to collect and report data every year. The results are intended to standardize data, track the development of high-quality fitness programs, and compare the performance of California's students to national norms on an annual basis as well as over time.

In addition, schools are required to include physical fitness test results in their School Accountability Report Card. SB 1632 specifies that the most recent physical fitness data be reported, including the percent of students scoring in the healthy fitness zone on all six fitness standards. Data are to be reported for the school and includes district and statewide results for the purpose of comparison.

The physical fitness test results will provide physical educators with considerable information to make program changes to promote physical activity and fitness in the daily lives of their students.

2002 California Physical Fitness Test Data Tables

Table 1: Participation by Gender

Students Tested	Grade 5		Grade 7		Grade 9	
	No.	%	No.	%	No.	%
Females	225,228	48.6	206,567	48.6	182,531	48.4
Males	233,274	50.3	214,019	50.4	191,259	50.7
No Gender Information	4,820	1.0	4,327	1.0	3,521	0.9

Table 2: Participation by Race/Ethnicity

Students Tested	Grade 5		Grade 7		Grade 9	
	No.	%	No.	%	No.	%
African/African American	37,465	8.1	34,109	8.0	28,954	7.7
American Indian/Alaskan Native	4,686	1.0	4,483	1.1	5,918	1.6
Asian/Asian American	33,701	7.3	33,659	7.9	28,620	7.6
Filipino/Filipino American	11,985	2.6	11,500	2.7	11,150	3.0
Hispanic/Latino	207,017	44.7	177,767	41.8	154,247	40.9
Pacific Islander	4,376	0.9	4,458	1.0	3,929	1.0
White – Not of Hispanic Origin	151,199	32.6	145,671	34.3	129,953	34.4
Other	6,193	1.3	6,605	1.6	5,390	1.4
Non-Response	6,700	1.4	6,661	1.6	9,150	2.4

Table 3: Summary of Test Results for All Students

Physical Fitness Tests	Grade 5			Grade 7			Grade 9		
	Total Tested**	% in HFZ *	% Not In HFZ	Total Tested	% in HFZ	% Not In HFZ	Total Tested	% in HFZ	% Not In HFZ
Aerobic Capacity	463,322	56.5	43.5	424,913	57.4	42.6	377,311	47.5	52.5
Body Composition	463,322	65.9	34.1	424,913	66.3	33.7	377,311	64.7	35.3
Abdominal Strength	463,322	78.1	21.9	424,913	80.7	19.3	377,311	77.7	22.3
Trunk Extension Strength	463,322	84.1	15.9	424,913	86.4	13.6	377,311	79.7	20.3
Upper Body Strength	463,322	62.5	37.5	424,913	62.2	37.8	377,311	61.1	38.9
Flexibility	463,322	63.7	36.3	424,913	69.3	30.7	377,311	65.5	34.5

Table 4: Summary of Fitness Standards Achieved for All Students

Number of fitness standards achieved	Grade 5		Grade 7		Grade 9	
	No.	%	No.	%	No.	%
6 of 6 fitness standards	102,872	22.2	110,046	25.9	85,558	22.7
5 of 6 fitness standards	118,667	25.6	111,244	26.2	95,083	25.2
4 of 6 fitness standards	97,954	21.1	83,594	19.7	73,689	19.5
3 of 6 fitness standards	68,024	14.7	55,790	13.1	48,553	12.9
2 of 6 fitness standards	39,351	8.5	31,215	7.3	26,232	7.0
1 of 6 fitness standards	17,662	3.8	13,761	3.2	13,195	3.5
0 of 6 fitness standards	18,792	4.1	19,263	4.5	35,001	9.3
Total tested:	463,322	100	424,913	100	377,311	100

**Total Tested = number of students tested (includes partially tested students)
* HFZ = Healthy Fitness Zone

Table 5: Summary of Results for Female Subgroup

Percent of FEMALES in HFZ for:	Grade 5			Grade 7			Grade 9		
	Total Tested**	% in HFZ*	% Not In HFZ	Total Tested	% in HFZ	% Not In HFZ	Total Tested	% in HFZ	% Not In HFZ
Aerobic Capacity	225,228	57.5	42.5	206,567	59.1	40.9	182,531	43.4	56.6
Body Composition	225,228	74.8	25.2	206,567	72.2	27.8	182,531	66.6	33.4
Abdominal Strength	225,228	78.1	21.9	206,567	80.9	19.1	182,531	78.1	21.9
Trunk Extension Strength	225,228	85.2	14.8	206,567	87.8	12.2	182,531	81.3	18.7
Upper Body Strength	225,228	59	41	206,567	60.3	39.7	182,531	60	40
Flexibility	225,228	66.8	33.2	206,567	73	27	182,531	66.4	33.6

Percent of FEMALES who achieved:	Grade 5		Grade 7		Grade 9	
	No.	%	No.	%	No.	%
6 of 6 fitness standards	52,591	23.4	56,362	27.3	38,385	21
5 of 6 fitness standards	59,653	26.5	55,739	27	46,659	25.6
4 of 6 fitness standards	48,803	21.7	41,407	20	38,175	20.9
3 of 6 fitness standards	32,301	14.3	26,318	12.7	24,668	13.5
2 of 6 fitness standards	17,741	7.9	13,828	6.7	12,849	7.0
1 of 6 fitness standards	7,800	3.5	5,887	2.8	6,369	3.5
0 of 6 fitness standards	6,339	2.8	7,026	3.4	15,426	8.5
Total tested:	225,228	100	206,567	100	182,531	100

Table 6: Summary of Results for Male Subgroup

Percent of MALES in HFZ for:	Grade 5			Grade 7			Grade 9		
	Total Tested**	% in HFZ	% Not In HFZ	Total Tested	% in HFZ	% Not In HFZ	Total Tested	% in HFZ	% Not In HFZ
Aerobic Capacity	233,274	56.6	43.4	214,019	56.9	43.1	191,259	52.1	47.9
Body Composition	233,274	58.3	41.7	214,019	61.8	38.2	191,259	63.8	36.2
Abdominal Strength	233,274	79.6	20.4	214,019	81.9	18.1	191,259	78.5	21.5
Trunk Extension Strength	233,274	84.5	15.5	214,019	86.6	13.4	191,259	79.4	20.6
Upper Body Strength	233,274	67	33	214,019	65	35	191,259	63	37
Flexibility	233,274	61.8	38.2	214,019	66.9	33.1	191,259	65.6	34.4

Percent of MALES who achieved:	Grade 5		Grade 7		Grade 9	
	No.	%	No.	%	No.	%
6 of 6 fitness standards	50,207	21.5	53,493	25	47,021	24.6
5 of 6 fitness standards	58,821	25.2	55,310	25.8	48,236	25.2
4 of 6 fitness standards	49,000	21	42,090	19.7	35,382	18.5
3 of 6 fitness standards	35,627	15.3	29,426	13.7	23,802	12.4
2 of 6 fitness standards	21,567	9.2	17,374	8.1	13,348	7.0
1 of 6 fitness standards	9,852	4.2	7,868	3.7	6,813	3.6
0 of 6 fitness standards	8,200	3.5	8,458	4.0	16,657	8.7
Total tested:	233,274	100	214,019	100	191,259	100

**Total Tested = number of students tested (includes partially tested students)

* HFZ = Healthy Fitness Zone

Table 7: Summary of Results for African/African American Subgroup

Percent of African/African American students in HFZ for:	Grade 5			Grade 7			Grade 9		
	Total Tested**	% in HFZ *	% Not In HFZ	Total Tested	% in HFZ	% Not In HFZ	Total Tested	% in HFZ	% Not In HFZ
Aerobic Capacity	36,971	49.9	50.1	33,594	47.7	52.3	28,398	37.1	62.9
Body Composition	34,745	65.6	34.4	31,211	63.7	36.3	23,412	58.2	41.8
Abdominal Strength	37,053	76.7	23.3	33,637	75	25	28,426	68	32
Trunk Extension Strength	37,027	80.1	19.9	33,596	81.7	18.3	28,399	71.2	28.8
Upper Body Strength	37,047	63.2	36.8	33,643	57.3	42.7	28,312	53.8	46.2
Flexibility	37,141	60.1	39.9	33,625	61.9	38.1	28,514	56.8	43.2

Percent of African/African American students who achieved:	Grade 5		Grade 7		Grade 9	
	No.	%	No.	%	No.	%
6 of 6 fitness standards	6,878	18.4	6,470	19	4,557	15.7
5 of 6 fitness standards	9,505	25.4	8,155	23.9	6,393	22.1
4 of 6 fitness standards	8,343	22.3	7,275	21.3	5,568	19.2
3 of 6 fitness standards	5,936	15.8	5,166	15.1	4,076	14.1
2 of 6 fitness standards	3,310	8.8	3,113	9.1	2,399	8.3
1 of 6 fitness standards	1,596	4.3	1,636	4.8	1,311	4.5
0 of 6 fitness standards	1,897	5.1	2,294	6.7	4,650	16.1
Total tested:	37,465	100	34,109	100	28,954	100

Table 8: Summary of Results for American Indian/Alaskan Native Subgroup

Percent of American Indian/Alaskan Native students in HFZ for:	Grade 5			Grade 7			Grade 9		
	Total Tested**	% in HFZ *	% Not In HFZ	Total Tested	% in HFZ	% Not In HFZ	Total Tested	% in HFZ	% Not In HFZ
Aerobic Capacity	4,608	52	48	4,415	53.2	46.8	5,820	51.7	48.3
Body Composition	4,491	65.4	34.6	4,266	66.4	33.6	5,280	66.8	33.2
Abdominal Strength	4,611	77.8	22.2	4,420	79.4	20.6	5,818	78.8	21.2
Trunk Extension Strength	4,606	84.4	15.6	4,443	87.2	12.8	5,825	77.7	22.3
Upper Body Strength	4,604	61.9	38.1	4,427	61.6	38.4	5,836	66.4	33.6
Flexibility	4,635	64.8	35.2	4,451	67.8	32.2	5,839	69.7	30.3

Percent of American Indian/Alaskan Native students who achieved:	Grade 5		Grade 7		Grade 9	
	No.	%	No.	%	No.	%
6 of 6 fitness standards	1,000	21.3	1,109	24.7	1,513	25.6
5 of 6 fitness standards	1,192	25.4	1,160	25.9	1,584	26.8
4 of 6 fitness standards	1,004	21.4	873	19.5	1,090	18.4
3 of 6 fitness standards	674	14.4	627	14	683	11.5
2 of 6 fitness standards	426	9.1	319	7.1	379	6.4
1 of 6 fitness standards	186	4.0	160	3.6	166	2.8
0 of 6 fitness standards	204	4.4	235	5.2	503	8.5
Total tested:	4,686	100	4,483	100	5,918	100

**Total Tested = number of students tested (includes partially tested students)

* HFZ = Healthy Fitness Zone

Table 9: Summary of Results for Asian/Asian American Subgroup

Percent of Asian/Asian American students in HFZ for:	Grade 5			Grade 7			Grade 9		
	Total Tested**	% in HFZ *	% Not In HFZ	Total Tested	% in HFZ	% Not In HFZ	Total Tested	% in HFZ	% Not In HFZ
Aerobic Capacity	33,393	61	39	33,411	65.9	34.1	28,276	55.5	44.5
Body Composition	32,399	74.9	25.1	32,732	77.8	22.2	26,482	76.2	23.8
Abdominal Strength	33,466	81.6	18.4	33,392	84.9	15.1	28,241	83.6	16.4
Trunk Extension Strength	33,397	86.1	13.9	33,375	88.7	11.3	28,124	82.4	17.6
Upper Body Strength	33,396	67.5	32.5	33,306	69.8	30.2	28,114	69.1	30.9
Flexibility	33,484	72.2	27.8	33,419	78.4	21.6	28,246	72.6	27.4

Percent of Asian/Asian American students who achieved:	Grade 5		Grade 7		Grade 9	
	No.	%	No.	%	No.	%
6 of 6 fitness standards	9,252	27.5	11,494	34.1	8,364	29.2
5 of 6 fitness standards	9,647	28.6	10,070	29.9	8,371	29.2
4 of 6 fitness standards	7,108	21.1	6,140	18.2	5,475	19.1
3 of 6 fitness standards	4,228	12.5	3,141	9.3	2,897	10.1
2 of 6 fitness standards	1,892	5.6	1,416	4.2	1,284	4.5
1 of 6 fitness standards	724	2.1	527	1.6	535	1.9
0 of 6 fitness standards	850	2.5	871	2.6	1,694	5.9
Total tested:	33,701	100	33,659	100	28,620	100

Table 10: Summary of Results for Filipino/Filipino American Subgroup

Percent of Filipino/Filipino American students in HFZ for:	Grade 5			Grade 7			Grade 9		
	Total Tested**	% in HFZ *	% Not In HF	Total Tested	% in HFZ	% Not In HFZ	Total Tested	% in HFZ	% Not In HFZ
Aerobic Capacity	11,851	55.3	44.7	11,380	59	41	11,036	49.7	50.3
Body Composition	11,566	67.9	32.1	11,174	71.2	28.8	10,244	70.7	29.3
Abdominal Strength	11,803	80.7	19.3	11,412	83.9	16.1	11,006	82	18
Trunk Extension Strength	11,731	84.5	15.5	11,410	89.1	10.9	10,991	83.5	16.5
Upper Body Strength	11,803	68.7	31.3	11,365	68.9	31.1	10,917	69.2	30.8
Flexibility	11,852	72.5	27.5	11,398	77.2	22.8	11,029	73.9	26.1

Percent of Filipino/Filipino American students who achieved:	Grade 5		Grade 7		Grade 9	
	No.	%	No.	%	No.	%
6 of 6 fitness standards	2,974	24.8	3,511	30.5	2,909	26.1
5 of 6 fitness standards	3,339	27.9	3,220	28	3,177	28.5
4 of 6 fitness standards	2,505	20.9	2,238	19.5	2,232	20
3 of 6 fitness standards	1,646	13.7	1,338	11.6	1,331	11.9
2 of 6 fitness standards	809	6.8	646	5.6	637	5.7
1 of 6 fitness standards	373	3.1	257	2.2	297	2.7
0 of 6 fitness standards	339	2.8	290	2.5	567	5.1
Total tested:	11,985	100	11,500	100	11,150	100

**Total Tested = number of students tested (includes partially tested students)

* HFZ = Healthy Fitness Zone

Table 11: Summary of Results for Hispanic/Latino Subgroup

Percent of Hispanic/Latino students in HFZ for:	Grade 5			Grade 7			Grade 9		
	Total Tested**	% in HFZ *	% Not In HF	Total Tested	% in HFZ	% Not In HFZ	Total Tested	% in HFZ	% Not In HFZ
Aerobic Capacity	204,822	53.5	46.5	176,250	53.4	46.6	152,035	42.3	57.7
Body Composition	197,850	60	40	168,340	59.7	40.3	134,708	58.7	41.3
Abdominal Strength	205,130	75.4	24.6	176,242	78.2	21.8	152,006	73.9	26.1
Trunk Extension Strength	204,788	83.2	16.8	176,190	86	14	151,694	77.9	22.1
Upper Body Strength	204,308	57.7	42.3	175,685	58.1	41.9	151,691	56.6	43.4
Flexibility	205,461	59.4	40.6	176,303	66.4	33.6	151,918	61.8	38.2

Percent of Hispanic/Latino students who achieved:	Grade 5		Grade 7		Grade 9	
	No.	%	No.	%	No.	%
6 of 6 fitness standards	34,738	16.8	36,046	20.3	26,745	17.3
5 of 6 fitness standards	49,549	23.9	44,121	24.8	35,807	23.2
4 of 6 fitness standards	46,932	22.7	37,888	21.3	31,970	20.7
3 of 6 fitness standards	35,794	17.3	28,069	15.8	23,443	15.2
2 of 6 fitness standards	22,258	10.8	16,922	9.5	13,693	8.9
1 of 6 fitness standards	10,158	4.9	7,600	4.3	7,369	4.8
0 of 6 fitness standards	7,588	3.7	7,121	4.0	15,220	9.9
Total tested:	207,017	100	177,767	100	154,247	100

Table 12: Summary of Results for Pacific Islander Subgroup

Percent of Pacific Islander students in HFZ for:	Grade 5			Grade 7			Grade 9		
	Total Tested**	% in HFZ *	% Not In HFZ	Total Tested	% in HFZ	% Not In HFZ	Total Tested	% in HFZ	% Not In HFZ
Aerobic Capacity	4,332	54	46	4,410	52.5	47.5	3,861	40.3	59.7
Body Composition	4,160	62.9	37.1	4,239	62.4	37.6	3,289	56.8	43.2
Abdominal Strength	4,335	82.2	17.8	4,410	81.8	18.2	3,874	76.2	23.8
Trunk Extension Strength	4,325	86.4	13.6	4,413	86.8	13.2	3,868	78.5	21.5
Upper Body Strength	4,328	67.1	32.9	4,397	62.4	37.6	3,848	61.7	38.3
Flexibility	4,346	68.2	31.8	4,410	70.2	29.8	3,870	61.6	38.4

Percent of Pacific Islander students who achieved:	Grade 5		Grade 7		Grade 9	
	No.	%	No.	%	No.	%
6 of 6 fitness standards	1,085	24.8	1,036	23.2	736	18.7
5 of 6 fitness standards	1,094	25	1,141	25.6	916	23.3
4 of 6 fitness standards	939	21.5	969	21.7	811	20.6
3 of 6 fitness standards	631	14.4	645	14.5	584	14.9
2 of 6 fitness standards	324	7.4	333	7.5	299	7.6
1 of 6 fitness standards	139	3.2	150	3.4	147	3.7
0 of 6 fitness standards	164	3.7	184	4.1	436	11.1
Total tested:	4,376	100	4,458	100	3,929	100

**Total Tested = number of students tested (includes partially tested students)

* HFZ = Healthy Fitness Zone

Table 13: Summary of Results for White – Not of Hispanic Origin Subgroup

Percent of White – Not of Hispanic origin students in HFZ for:	Grade 5			Grade 7			Grade 9		
	Total Tested**	% in HFZ *	% Not In HF	Total Tested	% in HFZ	% Not In HFZ	Total Tested	% in HFZ	% Not In HFZ
Aerobic Capacity	149,030	61.5	38.5	143,869	63.2	36.8	127,423	54.3	45.7
Body Composition	145,092	71.9	28.1	139,665	72.2	27.8	118,571	70.3	29.7
Abdominal Strength	149,184	81.2	18.8	143,905	84.1	15.9	127,468	83	17
Trunk Extension Strength	148,968	86.2	13.8	143,978	87.8	12.2	127,180	83.5	16.5
Upper Body Strength	148,663	67.2	32.8	143,724	66.3	33.7	127,160	65.9	34.1
Flexibility	149,552	67.5	32.5	144,265	71.9	28.1	127,810	69.7	30.3

Percent of White – Not of Hispanic origin students who achieved:	Grade 5		Grade 7		Grade 9	
	No.	%	No.	%	No.	%
6 of 6 fitness standards	43,945	29.1	47,090	32.3	37,564	28.9
5 of 6 fitness standards	40,992	27.1	39,859	27.4	35,330	27.2
4 of 6 fitness standards	28,598	18.9	25,817	17.7	23,706	18.2
3 of 6 fitness standards	17,488	11.6	15,223	10.5	13,795	10.6
2 of 6 fitness standards	9,461	6.3	7,599	5.2	6,649	5.1
1 of 6 fitness standards	4,078	2.7	3,043	2.1	2,956	2.3
0 of 6 fitness standards	6,637	4.4	7,040	4.8	9,953	7.7
Total tested:	151,199	100	145,671	100	129,953	100

**Total Tested = number of students tested (includes partially tested students)

* HFZ = Healthy Fitness Zone

Table 14: Comparison of Test Results — 2001 & 2002

Physical Fitness Tests	Grade 5		Grade 7		Grade 9	
	2001 % in HFZ *	2002 % in In HFZ	2001 % in HFZ	2002 % in In HFZ	2001 % in HFZ	2002 % in HFZ
Aerobic Capacity	55.7	56.5	58.0	57.4	48.9	47.5
Body Composition	65.4	65.9	66.6	66.3	67.7	64.7
Abdominal Strength	78.2	78.1	80.8	80.7	79.2	77.7
Trunk Extension Strength	84.0	84.1	85.9	86.4	81.5	79.7
Upper Body Strength	62.0	62.5	61.9	62.2	62.7	61.1
Flexibility	63.8	63.7	68.6	69.3	67.6	65.5

Table 15: Comparison of Fitness Standards Achieved — 2001 & 2002

Number of fitness standards achieved	Grade 5		Grade 7		Grade 9	
	2001 %	2002 %	2001 %	2002 %	2001 %	2002 %
6 of 6 fitness standards	21.3	22.2	24.9	25.9	22.6	22.7
5 of 6 fitness standards	25.7	25.6	26.4	26.2	25.8	25.2
4 of 6 fitness standards	21.8	21.1	20.2	19.7	20.8	19.5
3 of 6 fitness standards	15.0	14.7	13.6	13.1	13.7	12.9
2 of 6 fitness standards	8.4	8.5	7.6	7.3	7.4	7.0
1 of 6 fitness standards	4.1	3.8	3.4	3.2	3.6	3.5
0 of 6 fitness standards	3.7	4.1	3.8	4.5	6.0	9.3

* HFZ = Healthy Fitness Zone

Table 16: Comparison of Results for Female Subgroup — 2001 & 2002

Percent of FEMALES in HFZ for:	Grade 5		Grade 7		Grade 9	
	2001 % in HFZ*	2002 % in HFZ	2001 % in HFZ	2002 % in HFZ	2001 % in HFZ	2002 % in HFZ
Aerobic Capacity	55.9	57.5	59.0	59.1	43.5	43.4
Body Composition	73.6	74.8	72.1	72.2	69.3	66.6
Abdominal Strength	77.7	78.1	80.6	80.9	79.1	78.1
Trunk Extension Strength	84.7	85.2	86.9	87.8	82.6	81.3
Upper Body Strength	58.0	59	59.1	60.3	60.5	60
Flexibility	66.0	66.8	72.0	73	68.1	66.4

Table 17: Comparison of Fitness Standards for Female Subgroup — 2001 & 2002

Percent of FEMALES who achieved:	Grade 5		Grade 7		Grade 9	
	2001 %	2002 %	2001 %	2002 %	2001 %	2002 %
6 of 6 fitness standards	21.9	23.4	25.8	27.3	20.3	21
5 of 6 fitness standards	26.4	26.5	27.2	27	25.9	25.6
4 of 6 fitness standards	22.3	21.7	20.5	20	22.2	20.9
3 of 6 fitness standards	14.7	14.3	13.3	12.7	14.7	13.5
2 of 6 fitness standards	7.9	7.9	6.9	6.7	7.7	7.0
1 of 6 fitness standards	3.8	3.5	3.1	2.8	3.6	3.5
0 of 6 fitness standards	3.1	2.8	3.2	3.4	5.6	8.5

* HFZ = Healthy Fitness Zone

Table 18: Comparison of Results for Male Subgroup — 2001 & 2002

Percent of MALES in HFZ for:	Grade 5		Grade 7		Grade 9	
	2001 % in HFZ*	2002 % in HFZ	2001 % in HFZ	2002 % in HFZ	2001 % in HFZ	2002 % in HFZ
Aerobic Capacity	56.0	56.6	57.5	56.9	54.2	52.1
Body Composition	58.1	58.3	61.8	61.8	66.4	63.8
Abdominal Strength	79.4	79.6	81.6	81.9	79.8	78.5
Trunk Extension Strength	84.1	84.5	85.4	86.6	80.9	79.4
Upper Body Strength	66.3	67	65.1	65	65.2	63
Flexibility	62.2	61.8	65.9	66.9	67.5	65.6

Table 19: Comparison of Fitness Standards for Male Subgroup — 2001 & 2002

Percent of MALES who achieved:	Grade 5		Grade 7		Grade 9	
	2001 %	2002 %	2001 %	2002 %	2001 %	2002 %
6 of 6 fitness standards	20.9	21.5	24.3	25	24.9	24.6
5 of 6 fitness standards	25.3	25.2	25.7	25.8	25.9	25.2
4 of 6 fitness standards	21.4	21	20.0	19.7	19.6	18.5
3 of 6 fitness standards	15.4	15.3	14.1	13.7	12.9	12.4
2 of 6 fitness standards	9.0	9.2	8.3	8.1	7.2	7.0
1 of 6 fitness standards	4.4	4.2	3.7	3.7	3.7	3.6
0 of 6 fitness standards	3.6	3.5	3.8	4.0	5.8	8.7

* HFZ = Healthy Fitness Zone

Appendix 1
FITNESSGRAM
Standards for Healthy Fitness Zone*

FEMALES

Age	One Mile min:sec	PACER # laps	VO_{2max} ml/kg/min	Percent Fat	Body Mass Index	Curl-up # completed
10	12:30 — 9:30	15 — 41	40 — 48	32 — 17	23.5 — 16.6	12 — 26
11	12:00 — 9:00	15 — 41	39 — 47	32 — 17	24 — 16.9	15 — 29
12	12:00 — 9:00	23 — 41	38 — 46	32 — 17	24.5 — 16.9	18 — 32
13	11:30 — 9:00	23 — 51	37 — 45	32 — 17	24.5 — 17.5	18 — 32
14	11:00 — 8:30	23 — 51	36 — 44	32 — 17	25 — 17.5	18 — 32
15	10:30 — 8:00	23 — 51	35 — 43	32 — 17	25 — 17.5	18 — 35
16	10:00 — 8:00	32 — 61	35 — 43	32 — 17	25 — 17.5	18 — 35

Age	Trunk Lift inches	Push-up # completed	Modified Pull-up # completed	Pull-up # completed	Flexed Arm Hang seconds	Back Saver Sit & Reach ** inches	Shoulder Stretch
10	9 — 12	7 — 15	4 — 13	1 — 2	4 — 10	9	Passing = Touching the fingertips together behind the back.
11	9 — 12	7 — 15	4 — 13	1 — 2	6 — 12	10	
12	9 — 12	7 — 15	4 — 13	1 — 2	7 — 12	10	
13	9 — 12	7 — 15	4 — 13	1 — 2	8 — 12	10	
14	9 — 12	7 — 15	4 — 13	1 — 2	8 — 12	10	
15	9 — 12	7 — 15	4 — 13	1 — 2	8 — 12	12	
16	9 — 12	7 — 15	4 — 13	1 — 2	8 — 12	12	

MALES

Age	One Mile min:sec	PACER # laps	VO_{2max} ml/kg/min	Percent Fat	Body Mass Index	Curl-up # completed
10	11:30 — 9:00	23 — 61	42 — 52	25 — 10	21 — 15.3	12 — 24
11	11:00 — 8:30	23 — 72	42 — 52	25 — 10	21 — 15.8	15 — 28
12	10:30 — 8:00	32 — 72	42 — 52	25 — 10	22 — 16.0	18 — 36
13	10:00 — 7:30	41 — 72	42 — 52	25 — 10	23 — 16.6	21 — 40
14	9:30 — 7:00	41 — 83	42 — 52	25 — 10	24.5 — 17.5	24 — 45
15	9:00 — 7:00	51 — 94	42 — 52	25 — 10	25 — 18.1	24 — 47
16	8:30 — 7:00	61 — 94	42 — 52	25 — 10	26.5 — 18.5	24 — 47

Age	Trunk Lift inches	Push-up # completed	Modified Pull-up # completed	Pull-up # completed	Flexed Arm Hang seconds	Back Saver Sit & Reach ** inches	Shoulder Stretch
10	9 — 12	7 — 20	5 — 15	1 — 2	4 — 10	8	Passing = Touching the fingertips together behind the back.
11	9 — 12	8 — 20	6 — 17	1 — 3	6 — 13	8	
12	9 — 12	10 — 20	7 — 20	1 — 3	6 — 13	8	
13	9 — 12	12 — 25	8 — 22	1 — 4	12 — 17	8	
14	9 — 12	14 — 30	9 — 25	2 — 5	15 — 20	8	
15	9 — 12	16 — 35	10 — 27	3 — 7	15 — 20	8	
16	9 — 12	18 — 35	12 — 30	5 — 8	15 — 20	8	

* Number on left is lower end of HFZ; number on right is upper end of HFZ.

** Test scored Pass/Fail; must reach this distance to pass.

Appendix 2
State Analysis Proves Physically Fit Kids Perform Better Academically

A preliminary analysis conducted by the California Department of Education (CDE) shows a significant relationship between academic achievement and the physical fitness of California's public school students. Findings from the analysis provide compelling evidence that the physical well-being of students has a direct impact on their ability to achieve academically. The newly completed analysis individually matched scores from the spring 2001 administration of the Stanford Achievement Test, Ninth Edition (SAT 9), given as part of California's Standardized Testing and Reporting Program, with results of the state-mandated physical fitness test, known as the *Fitnessgram*, given in 2001 to students in grades five, seven, and nine.

For the analysis, reading and mathematics scores were matched with fitness scores of 353,000 fifth graders, 322,000 seventh graders, and 279,000 ninth graders. The attached bar graphs for each grade level show a significant relationship between the two types of scores that were matched.

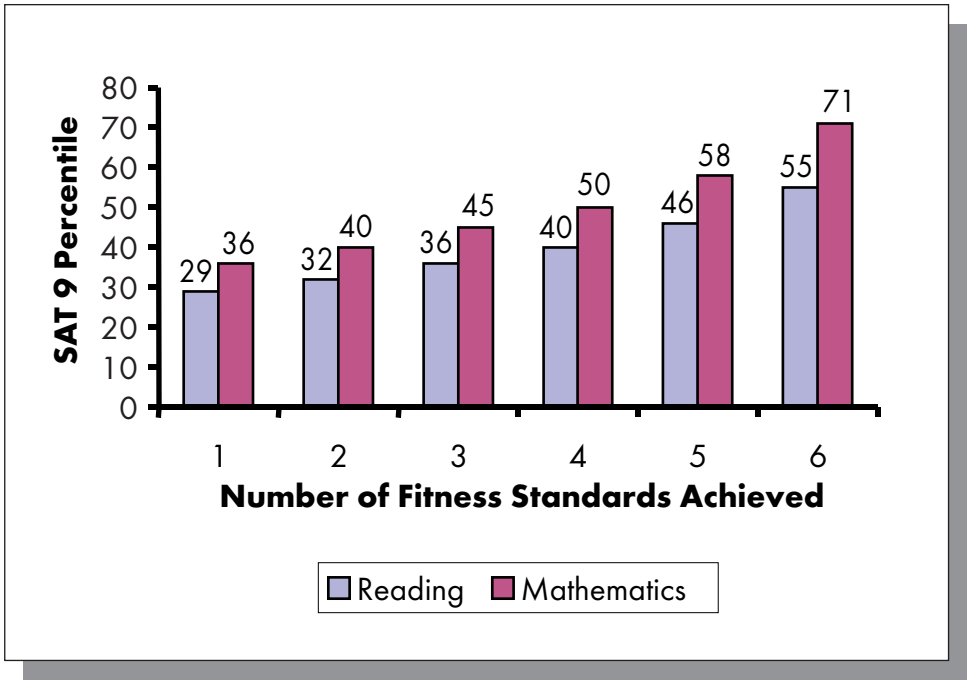
Key findings show correlation:

- Higher achievement was associated with higher levels of fitness at each of the three grade levels measured.
- The relationship between academic achievement and fitness was greater in mathematics than in reading, particularly at higher fitness levels.
- Students who met minimum fitness levels in three or more physical fitness areas showed the greatest gains in academic achievement at all three grade levels.
- Females demonstrated higher achievement than males, particularly at higher fitness levels.

The California Education Code mandates physical education for all students in grades one through nine, plus one additional year in high school. Students in grades one through six are required to have 200 minutes of physical education every 10 school days, and students in grades seven through twelve are required to have 400 minutes every 10 school days. Specific recommendations for teachers, students, and their families are available on the CDE Web site at: <http://www.cde.ca.gov/cyfsbranch/lsp/health/pecommunications.htm>.

Families are encouraged to plan activities that include opportunities for all family members to be physically active together. Health-related fitness assessment results can be used as a tool to help students understand, enjoy, improve, and maintain their physical health and well-being.

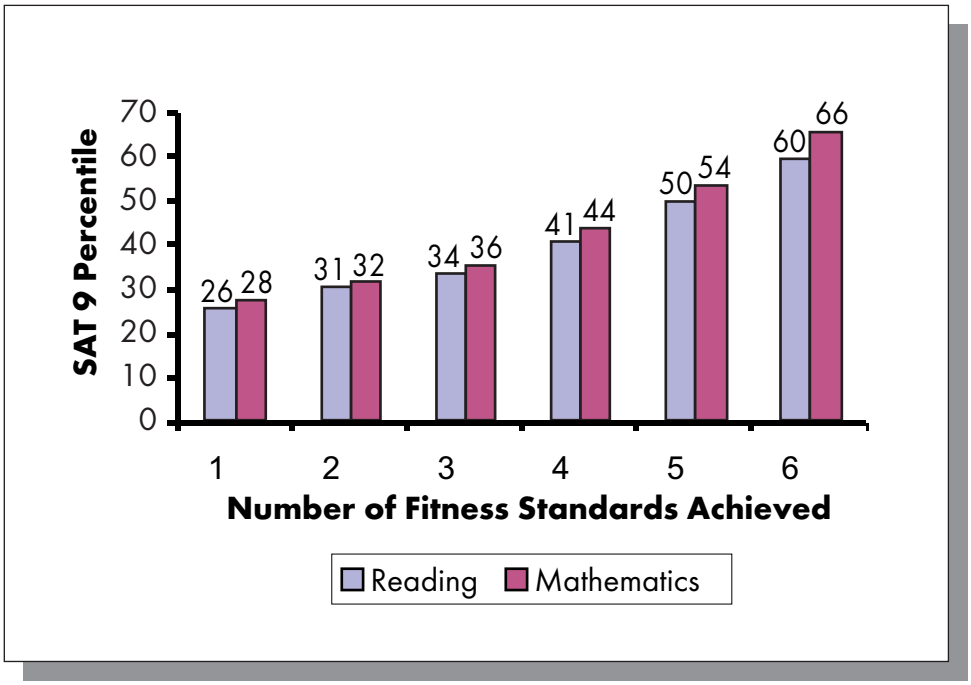
Table I
2001 Grade 5 SAT 9 and Physical Fitness



Findings:

- The height of each bar shows the average (median) SAT 9 national percentile rank of those students with a particular fitness score.
- Higher academic achievement is associated with higher levels of fitness in grade 5.
- Students in grade 5 who meet minimum fitness levels in three or more physical fitness areas show the greatest gains in academic achievement.
- The relationship between academic achievement and fitness in grade 5 was greater in mathematics than in reading, particularly at high fitness levels.
- The test that was used, *Fitnessgram*, uses criterion-referenced standards to evaluate fitness. These standards represent a level of fitness that offers some degree of protection against diseases that result from sedentary living. Achievement of the fitness standards is based upon a test score falling in the Healthy Fitness Zone (HFZ). Each of the six tasks measures a different aspect of fitness, and the HFZ represent minimal levels of satisfactory achievement on the tasks.

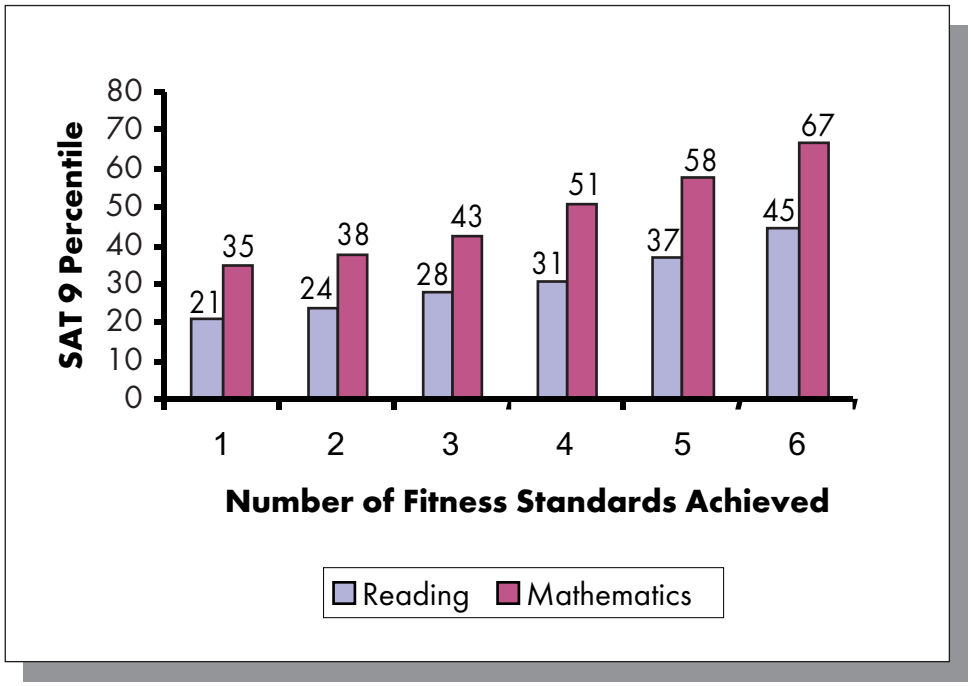
Table II
2001 Grade 7 SAT 9 and Physical Fitness



Findings:

- The height of each bar shows the average (median) SAT 9 national percentile rank of those students with a particular fitness score.
- Higher academic achievement is associated with higher levels of fitness in grade 7.
- Students in grade 7 who meet minimum fitness levels in three or more physical fitness areas show the greatest gains in academic achievement.
- The relationship between academic achievement and fitness in grade 7 was greater in mathematics than in reading, particularly at high fitness levels.
- The test that was used, *Fitnessgram*, uses criterion-referenced standards to evaluate fitness. These standards represent a level of fitness that offers some degree of protection against diseases that result from sedentary living. Achievement of the fitness standards is based upon a test score falling in the Healthy Fitness Zone (HFZ). Each of the six tasks measures a different aspect of fitness, and the HFZ represent minimal levels of satisfactory achievement on the tasks.

Table III
Grade 9 SAT 9 and Physical Fitness



Findings:

- The height of each bar shows the average (median) SAT 9 national percentile rank of those students with a particular fitness score.
- Higher academic achievement is associated with higher levels of fitness in grade 9.
- Students in grade 9 who meet minimum fitness levels in three or more physical fitness areas show the greatest gains in academic achievement.
- The relationship between academic achievement and fitness in grade 9 was greater in mathematics than in reading, particularly at high fitness levels.
- The test that was used, *Fitnessgram*, uses criterion-referenced standards to evaluate fitness. These standards represent a level of fitness that offers some degree of protection against diseases that result from sedentary living. Achievement of the fitness standards is based upon a test score falling in the Healthy Fitness Zone (HFZ). Each of the six tasks measures a different aspect of fitness, and the HFZ represent minimal levels of satisfactory achievement on the tasks.